

The Factors Affecting Stunting Child under Five Years in Sub Province Mimika

Lenni Silas¹, A.L. Rantetampang², Rosmin Tingginehe³, Anwar Mallongi⁴

¹Magister Program of Public Health, ^{2,3}Lecturer of Master Program in Public Health Faculty of Public Health, Cenderawasih University, Jayapura

⁴Environmental Health Department, Faculty of Public Health, Hasanuddin University, Makassar

Corresponding Author: Lenni Silas

ABSTRACT

Introduction: Stunting is effect of growth retardation to finally genetik potensial, so there indicate the health long impact cumulatif caused nutrient, health and role of parent not maximal and be effect in prodcutivity in feature. Stunting is health of problem in Indonesian and Sub Province Mimika.

Target of research: to knowing the factors affecting of stunting at child under five years in Sub Province Mimika.

Method Research: Analytic of observational with cross sectional study design. Research executed on May 2018 in Sub Province Papuan with population is child under five years amount of sample counted 100 people with purposive sampling. Data approach used questionnaire and analysed by chi square test and logistic binary regression.

Result of research : The factors not significant of stunting at child under five years in Sub Province Mimika are age (p -value 1,000; RP = 0,0956; CI95% (0,400– 2,283), studies (p -value 0,662; RP = 1,216; CI95% (0,684 - 2,162), job description (p -value = 0,680; RP = 1,276; CI95% (0,656– 2,480), financial (p -value = 0,184; RP = 1,564; CI95% (0,889– 2,751) dan penyakit infeksi (p -value = 0,232; RP = 1,509; CI95% (0,847 – 2,688). There is factor's significant of stunting at child under five years in Sub Province Mimika is knowledge (p -value = 0,000; RP = 5,143; CI95% (3,126 – 8,460), role of mother, (p -value = 0,000; RP = 4,263; CI95% (2,585 – 7,033) weight baby new born (p -value = 0,000; RP = 3,841; CI95% (2,548 – 5,790). The Knowledge, role of parents and weight baby new born is factor's significant and knowledge is dominant with stunting incidence to child under five years.

Key Words: Stunting, Child, Sub Province Mimika

1. INTRODUCTION

Health development in the period 2015-2019 is focused on four program priorities, namely the reduction of maternal and infant mortality, decreased stunting prevalence, control of communicable diseases and non-communicable disease control. Efforts to improve the nutritional status of the community include decreasing the prevalence of short toddlers into one of development priorities national (Kemenkes RI, 2015). The Ministry of Health of Indonesia in 2015 implementing Nutrition Status Monitoring (PSG) which is a cross sectional study with sample of households with toddlers in Indonesia of 29% consists of very short of 10.1% and short of 18.8% with the highest percentage of 34 provinces is Nusa Province East-East amounted to 41.9% while the province of Papua was at number 19 with a percentage of 29.1%.

The nutritional status of infants due to economic crisis is influenced by various interrelated factors, especially food intake and infectious diseases. Both factors are influenced by family purchasing power, family size, eating habits, parenting, pregnancy care, basic health services, sanitation and other environmental and social factors (Supariasa, 2012). Short toddler problems describe chronic nutritional problems, influenced by mother / mother / fetal condition, fetal life, and infant

/ under-five years, including illness that has been diagnosed during childhood. As with other nutritional problems, not only related to health problems, but also affected various other conditions that indirectly affect health (Ministry of Health RI, 2016). Data on PSG (Monitoring of Nutritional Status) of Mimika Regency Health Office in 2015 was reported by stunting children by 27.5%, by 2016 by 29.4% and by 2017 by 32.2%. If we look at the figure that from 3 years of successive stunting figures in toddlers does not decrease but the number of percentage increases. Based on the problem, the researcher conducted a research entitled "Factors - Factors Associated with Stunting Toddlers at Health Office of Mimika Regency".

2. MATERIALS AND METHODS

Analytical observational with cross sectional study design. The research was conducted in May 2018 in Mimika Regency with the popuasi was toddler and the respondent was the mother of the toddler as many as 100 people by purposive sampling. Data were obtained using questionnaire and analyzed using chi square test and logistic binary regression.

3. RESEARCH RESULTS

3.1. Univariate Analysis

Table 1, shows the age of mothers who gave birth most in safe age, ie age 20-35 years as many as 87 people (87%). The highest respondents with low education were 64 people (64%) and did not work as many as 82 people (82%). Family income in

the high category of 61 people (61%). The highest maternal knowledge in the good category was 80 people (80%) and the pattern of care provided was 80 people (80%). Infectious diseases suffered by children as many as 46 people (46%) and most with normal birth weight as many as 88 people (88%). Stunting incidence in toddlers is as many as 32 people (32%).

Table1. Prosperity, education, occupation, income, family, nutrition knowledge, mother attitude, parenting, infectious diseases and Stunting

No	Variables	(n)	(%)
1	Age of mother		
	< 20, > 35 year	13	13
	20-35 year	87	87
2	Education		
	Low	36	36
	High	64	64
3	Occupation		
	Work	18	18
	Not work	82	82
4	Family income		
	Low	39	39
	High	61	61
5	Nutrition knowledge		
	less	20	20
	good	80	80
6	Treatment term		
	Less	21	21
	Good	79	79
7	Infeksion disease		
	Exist	46	46
	None	54	54
8	Wight birth		
	BBLR	12	12
	Normal	88	88
9	Stunting		
	Stunting	32	32
	Normal	68	68
Number		100	100

3.2. Bivariate Analysis

a. Maternal age relationship with Stunting toddler

Table2. Maternal age relationship with Stunting in infants at Mimika Regency Health Office 2018

No	age	Stunting balita				n	%
		Stunting		Normal			
		n	%	n	%		
1	<20and> 35 year	4	30,8	9	69,2	13	100
2	20 - 35 year	28	32,2	59	67,8	87	100
Total		32	32	68	68	100	100
<i>p-value = 1,000; RP = 0,956; CI95% (0,400– 2,283)</i>							

Table 2 shows that from 13 mothers aged <20 and> 35 years there were 4 people

(30.8%) with stunting and 9 people (69.2%) normal. Whereas of 87 mothers aged more than or equal to 20 years there

were 28 people (32.2%) with stunting and 59 people (67.8%) with normal nutritional status. = 0,05) obtained p-value 1,000 or $p < \alpha$ The result of chi square statistic test at significance value 95% ($> \alpha$ (0,05). This means that there is a relationship of maternal age but not significant with stunting in toddler in Mimika Regency Health Office. The result value RP = 0.0956; CI95% (0,400- 2,283) with lower < 1 , so age is not significant.

b. Maternal education relationship with Stunting toddler

Table3. Maternal education relationship with Stunting in infants at Mimika Regency Health Office 2018

No	Education	Stunting balita				n	%
		Stunting		Normal			
		n	%	n	%		
1	Low	13	36,1	23	63,9	36	100
2	High	19	29,7	45	70,3	64	100
Total		32	32	68	68	100	100
<i>p-value = 0,662; RP = 1,216; CI95% (0,684 - 2,162)</i>							

Table 3 shows that from 36 low educated mothers there were 13 people (36.1%) with stunting and 23 people (63.9%) normal. Whereas from 64 high-educated mothers of 64 years there were 19 people (29.7%) with stunting and 45 people (70.3%) with Normal. = 0,05) obtained p-value 0,662 or $p < \alpha$ The result of chi square statistic test at significance value 95% ($> \alpha$ (0,05). This means that there is a maternal education relationship but not significant with stunting in toddlers in Mimika Regency Health Office.

c. Relationship of mother's job with Stunting toddler

Table4. Relationship of mother's work with Stunting in toddlers in Mimika Regency Health Office 2018

No	Occupation	Stunting balita				n	%
		Stunting		Normal			
		n	%	n	%		
1	Work	7	38,9	11	61,1	18	100
2	Not work	25	30,5	57	69,5	82	100
Total		32	32	68	68	100	100
<i>p-value = 0,680; RP = 1,276; CI95% (0,656 - 2,480)</i>							

Table 4 shows that of 18 working mothers there were 7 people (38.9%) with stunting and 11 people (61.1%) with

normal. While from 82 mothers who did not work there were 25 people (30.5%) with stunting and 57 people (69.5%) Normal. = 0,05) obtained p-value 0,680 or $p < \alpha$ The result of chi square statistic test at significance value 95% ($> \alpha$ (0,05). This means that there is a significant but not significant relationship between mother work with stunting in infants at the Mimika Regency Health Office.

d. Revenue Relations Family of mother with Stunting toddler

Table5. Relationship of Family Revenue with Stunting at Under-five at Mimika Regency Health Office 2018

No	Family income	Stunting balita				n	%
		Stunting		Normal			
		n	%	n	%		
1	Low	16	41	23	59	39	100
2	High	16	26,2	45	73,8	61	100
Total		32	32	68	68	100	100
<i>p-value = 0,184; RP = 1,564; CI95% (0,889 - 2,751)</i>							

Table 5 shows that out of 39 mothers with low family income there were 16 (41%) with stunting and 23 (59%) normal people. Whereas from 61 mothers with high family income there were 16 people (26,2%) with stunting and 45 people (73,8%) normal. = 0,05) obtained p-value 0,184 or $p < \alpha$ The result of chi square statistic test at significance value 95% ($> \alpha$ (0,05). This means that there is a relationship but not meaningful income of mother's family with stunting in toddler in Mimika Regency Health Office.

e. Relationship of mother's nutritional knowledge with Stunting toddlers

Table6. Relationship of mother's nutritional knowledge with Stunting in infants at Mimika Regency Health Office 2018

No	Knowledge	Stunting balita				n	%
		Stunting		Normal			
		n	%	n	%		
1	Less	18	90	2	10	20	100
2	Good	14	17,5	66	82,5	80	100
Total		32	32	68	68	100	100
<i>p-value = 0,000; RP = 5,143; CI95% (3,126 - 8,460)</i>							

Table 6 shows that out of 20 mothers with less knowledge there were 18 people (90%) with stunting and 2 people (10%) normal. Whereas from 80 mothers with

good knowledge there are 14 people (17,5%) with stunting and 66 people (82,5%) normal. = 0,05) obtained p-value 0,000 or $p < \alpha$ The result of chi square statistic test at significance value 95% ($< \alpha$ (0,05). This means that there is a correlation between mother's knowledge with stunting in infants at Mimika Regency Health Office. The result value of 5,143; CI95% (3,126 - 8,460) interpreted that respondents with knowledge of less likely to have stunting in under five years are 5,143 times higher than those of well-informed mothers.

f. The relationship of mother's parenting with stunting toddlers

Table7. Relationship of mother's parenting with Stunting in infants at Mimika Regency Health Office 2018

No	Parenting	Stunting balita				n	%
		Stunting		Normal			
		n	%	n	%		
1	Less	17	81	4	19	21	100
2	Good	15	19	64	81	79	100
Total		32	32	68	68	100	100
<i>p-value</i> = 0,000; RP = 4,263; CI95% (2,585 – 7,033)							

Table 7 shows that out of the 21 mothers, there were 17 people (81%) with normal stunting and 4 people (19%). While from 79 mothers with good parenting there are 15 people (19%) with stunting and 64 people (81%) normal. = 0,05) obtained p-value 0,000 or $p < \alpha$ The result of chi square statistic test at significance value 95% ($< \alpha$ (0,05). This means that there is a significant relationship with mother's stunting pattern with stunting in infants at Mimika Regency Health Office. The result value of RP = RP = 4,263; CI95% (2,585 - 7,033) interpreted that mothers with less likely parenting pattern with stunting in children 4.263 times higher than mother with good parenting.

g. The relationship of infectious diseases of mothers with Stunting toddlers

Table8. Relationship of infectious diseases of mothers with Stunting in infants at Mimika Regency Health Office 2018

No	Infection disease	Stunting balita				n	%
		Stunting		Normal			
		n	%	n	%		
1	Exist	18	39,1	28	60,9	46	100
2	None	14	25,9	40	74,1	54	100
Total		32	32	68	68	100	100
<i>p-value</i> = 0,232; RP = 1,509; CI95% (0,847 – 2,688)							

Table 8 shows that of 46 mothers having children with infectious diseases there were 18 people (39.1%) with stunting and 28 people (60.9%) normal. Whereas from 54 mothers with children without infectious disease there are 14 people (25,9%) with stunting and 40 people (74,1%) normal. = 0,05) obtained p-value 0,232 or $p < \alpha$ The result of chi square statistic test at significance value 95% ($> \alpha$ (0,05). This means that there is a relationship but no significant infectious disease with stunting in infants at the Mimika Regency Health Office.

h. Birth Weight Relation with Stunting Toddler

Table9. Relation of Birth Weight with Stunting in Toddler at Mimika Regency Health Office 2018

No	Berat Lahir	Stunting balita				n	%
		Stunting		Normal			
		n	%	n	%		
1	BBLR	11	91,7	1	8,3	12	100
2	Normal	21	23,9	67	76,1	88	100
Total		32	32	68	68	100	100
<i>p-value</i> = 0,000; RP = 3,841; CI95% (2,548 – 5,790)							

Table 9 shows that of 12 mothers with LBW children there were 11 people (91.7%) with stunting and 1 person (8.3%) with normal nutritional status. Whereas from 88 mothers with normal weight child born there are 21 people (23,9%) with stunting and 67 people (82,6%) with Normal nutrition status. = 0,05) obtained p-value 0,000 or $p < \alpha$ The result of chi square statistic test at significance value 95% ($< \alpha$ (0,05). This means that there is a significant association of birth weight with stunting in infants at the Mimika Regency Health Office. Result of value 3,841; CI95% (2,548 - 5,790) interpreted that infants born with LBW tend to stunting at 3,841 times higher than normal-born birth weight babies.

3.3. Multivariate Analysis

Multivariate analysis was used to obtain factors that influence to stunting balita, hence need to be done bivariate analysis and continued on multivariate test using p value $< 0,25$ which can be seen in Table 10.

Table10. Bivariate Modeling

No	Variables	p-value	Notes
1	Age	1,000	Not candidate
2	Education	0,662	Not candidate
3	Occupation	0,680	Not candidate
4	Family income	0,184	candidate candidate
5	Nutrition knowledge	0,000	candidate candidate
6	Parenting	0,000	candidate
7	Infection diseases	0,232	
8	Birth weight	0,000	

Table 10 shows that the candidate variables included in the multivariate test were assessed dri $p = <0.25$ were family income, maternal nutritional knowledge, parenting, infectious diseases and birth weight. In multivariate test using backward conditional method.

Table11. Analysis of Multiple Logistic Regression Variables

No	Variables	B	p-value	RP	95% C. I. for Exp (B)	
					Lower	Upper
1	Knowledge	3,558	0,000	35,088	6,211	198,216
2	Parenting	1,985	0,017	7,282	1,419	37,383
3	Birth weight	3,865	0,001	47,704	4,777	476,385
	Constant	17,134	0,000	0,000		

Table 11 above shows that the main factors of stunting incidence in toddlers are knowledge, parenting and birth weight. Knowledge is the most dominant variable with the incidence of stunting in infants.

4. DISCUSSION

4.1. Maternal age relationship with toddler Stunting

The results obtained that there is a relationship but not the meaning of maternal age of childbirth with stunting in infants at the Health Office of Mimika Regency. At the age of mothers who gave birth in the category of risk (<20 years and> 35 years) found 30.8% of stunting, whereas in mothers of childbirth > 20 years found toddlers with stunting as many as 28 people (32.2%). This indicates that at the age of mothers at risk of childbirth and not at risk have the same opportunities with stunting events in infants.

In this study, there is no significant age relationship between mother giving birth to stunting incident in children under five years due to nutritional status in children can be prevented by fulfilment of balanced nutritional intake during pregnancy and good pregnancy care. Babies born with good parenting by the parents in providing nutritional intake in their children can prevent the occurrence of stunting. In addition, the absence of age factor with the incidence of stunting in toddlers is explained from the results Nashikah (2012)

that genetic is a risk factor for stunting events in children under five, namely the height of the mother and the height of the father. This is supported by the theory put forward by Supariasa (2012) which states that children with short parents, either one or both, are at greater risk of growing shorter than children with a normal high-parent.

4.2. Relationship of mother's education with Stunting toddlers

The results obtained that there is a relationship but not meaningless education of mothers with stunting in infants at the Health Office of Mimika Regency. Mother with low education 36,1% with stunting while mother with high education 29,7% with stunting. This proportion is not much different and has the same opportunities with stunting events in toddlers. In this study obtained that education is not related to the incidence of stunting in infants due to education is influenced by other factors, namely knowledge. High education affects the ability of a person to think or capture, but this depends on the source of information obtained by the mother. Because not always a well-educated mother has good knowledge, because formal education in this case improves the ability of mind power, so if the mother is not exposed to information about good nurse toddler causing less knowledge of mother which impact on mother pattern in child giving nutrition.

The level of maternal education is one of the indicators to know the level of mother's nutritional knowledge. The higher the mother's education the easier it is for the mother to understand the information about gizianak, the mother's role in fulfilling the quality and quantity of the nutrient can be improved so that the growth and the development of the child become more optimal so that the health officer can give counseling or health education to the mother. Thus, a lowly educated mother may know good care or parenting to improve the nutritional status of the anak to prevent stunting.

4.3 Mother's job

The results obtained that there is a relationship but not significant work of mother with stunting in toddler in Health Department of Regency of Mimika. Mothers who work as much as 38.9% balitany children experience stunting, while in mothers who do not work as much as 30.5% experience stunting. The lack of employment relation to stunting of toddlers is caused by the mother who does not work but has the financial ability and good nutrition knowledge in presenting a balanced nutritious food intake in her toddler. In contrast, working mothers who have experience and additional financial support can fulfil their child nutrition intake. In addition, working mothers tend to shed or raise their children to families and carers who are hired because of the financial ability it has. However, it is also found that children under five have stunting, so it is expected that the mother to prevent stunting by providing nutritional intake for her child.

4.4. Family income relationship with toddler Stunting

Family income of 100 respondents was 61 respondents or 61% of respondents had high family income and 39% of respondents with low family income. High salary income above Rp. 3 million sufficient to meet the needs of family food. From the statistical test results obtained no relation of family income to stunting events in toddlers. Low family income found 41% experienced

stunting and high family income found 26.2% of children under five had stunting. From the results of the prevalence ratio test (RP = 1.564), although it indicates the risk of family income to the stunting event, it is not significant because high income has not been able to meet the family's nutritional intake due to the low knowledge of the family in spending the money to meet balanced nutrition or diverse in children her toddler. Thus the absence of family income relationships is due to maternal knowledge in spending family food needs. High spending, but fewer food expenditures are at risk of family food availability. The greater food expenditure in households shows the lower household food insecurity. It is agreed according to Berg (2010) that with increasing expenditure for consumption is not always followed by improvement of food consumption pattern. Although a person tends to spend most of his income for consumption does not necessarily reflect that what is eaten is already good in his nutritional quality. In addition, the ability of families to buy food is not only influenced by the amount of income but the price of food. Some expensive food prices tend not to be selected and purchased, so in families these types of food are rarely served so that in meeting the nutritional needs are still lacking.

4.5. Relationship knowledge of mother nutrition with Stunting of toddler

Maternal nutrition knowledge in Mimika Regency 80% of respondents in good category and 20% in less category. The level of maternal education also determines the convenience of mothers in absorbing and understanding the nutritional knowledge gained. This can be the basis for distinguishing the appropriate extension methods. From the family's nutritional importance, education is needed so that a person, especially mothers, is more responsive to the nutritional problems in the family and can take action as soon as possible.

High maternal knowledge is able to provide a balanced nutritional intake for families

and children. Higher maternal knowledge is more prevalent in well-educated mothers than in poorly educated mothers. Good maternal nutritional knowledge is not always a child experienced optimal growth, where the mother is well knowledgeable 17.5% of children have stunting.

Most of the mothers researched were from local origin who had staple foods of sweet potatoes and how to provide interesting and diverse food for the children to the local people from the local area compared with the way food processing from non-Papua. Based on these problems, health workers can provide information by working with nutrition cadres in posyandu to increase the coverage of nutrient conscious families by providing periodic guidance and counseling at posyandu with information on how to cook, cooking process using cooking demonstration for mothers in posyandu .

4.6. Relationship of mother's parenting with Stunting in toddlers

The pattern of parenting is the care given by the mother or other caregivers in the form of attitude, and behavior in terms of proximity to children, feeding, taking care, maintaining cleanliness, giving love, and so on. All of these are related to maternal circumstances in terms of physical health, and mental, nutritional status, general education, knowledge of good parenting, roles in the family, and society and so on. The pattern of care applied by mothers in Kabupaten Mimika dipeorleh as much as 79% in either category. A good parenting pattern is more common in mothers who do not work or as housewives. Parenting patterns applied by mothers in the category of less is not to accompany children to eat and do not meruayu children for children who have less appetite and rarely provide breakfast, so the risk of lack of fulfilment of balanced nutrition for children.

The result of statistical test shows that there is a relationship between mother care pattern with stunting in toddler in Health Office of Regency of Mimika, that is

mother whose parenting pattern is less chance of stunting in children 4.263 times higher than mother with good parenting pattern. Mothers who had less than 81% of foster nursing children had stunting, while in mothers whose parenting patterns had fewer stunting children as much as 19%. The pattern of poor parenting by the mother in Mimika Regency amounted to 4,263 times the stunting stays higher than the mother who applied good parenting pattern. Research conducted by Nabuasa (2013) about the stunting event obtained higher results that there is a significant relationship between the history of parenting pattern to the incidence of stunting with the OR value or the strength of the relationship of 14.5 times.

Parenting patterns that parents apply well by giving priority to their children to eat first, always accompany or supervise children eat, give children breakfast and keep food hygiene children while eating by forbidding children eat food that falls on the floor because of the risk of digestive disorders such as diseases diarrhea. This correct parenting should be further enhanced through the support of health workers in improving nutritional conscious families.

4.7 Relationship of infectious diseases of mothers with Stunting toddlers

One of the factors that can cause BB / U disruption is unsuitable home sanitation, so the baby is susceptible to infectious diseases that can cause less nutritional status in infants. Infectious diseases that occur or suffered by children are diarrhea, TB and malaria. Infectious diseases suffered by the children of respondents as much as 46%, namely malaria, TB and diarrhea and complications between the two infectious diseases tersbeut. The statistical test results obtained that there is no relationship of infectious diseases with stunting in infants at the Health Office of Mimika Regency. Children suffering from infectious diseases as much as 53.5% and 46.5% did not suffer from infectious diseases. The result of the prevalence (RP 1.509) which is defined as risk but not caused due to lower value less

than 1. Inaccuracy of infectious diseases against stunting incident in children under five in Mimika Regency caused by factors affecting infectious diseases in children under five.

The results of the prevalence ratio have the risk of infectious diseases but not significant due to infectious diseases suffered by the moon is a chronic infectious disease or infectious disease penyakit within 4-5 days so that no significant impact on nutritional status of children.

4.8 Relationship of Birth weight with stunting in toddlers

Children born with LBW are 12 children (12%) and 88% normal birth weight. In children born with LBW as many as 91.7% experienced stunting, this percentage is higher than children with a normal birth weight history of 23.9%. children under five born with LBW at risk of stunting 3,841 times higher than normal-born babies. In this study also found that children born with LBW did not experience stunting as much as 8.3%. Hali is caused because the child does not have the risk of stunting from the height of his parents as well as the nutritional intake through the nutrition wash nutrition provided by the mother. The impact of infants who have low birth weight will take place between one generation to the next. LBW children in the future will have less anthropometric measures in adulthood. For women who are born with low weight, have a big risk to become a stunted mother so will tend to give birth to babies with low birth weight like himself.

4.9. Dominant factors

The result of multivariate test of stunting event is knowledge, parenting and birth weight of the most dominant factor found is knowledge. Infants born with low birth weight have a short body length, but the situation of this child can be overcome through good parenting by the mother in providing a balanced nutritional intake, so that it meets all the nutritional intake needed by children and it is very closely related to the knowledge mothers in taking action in

fulfilment of nutritional needs needed child. Thus a well-informed mother can prevent the occurrence of stunting starting from pregnancy by meeting the nutritional intake that can prevent LBW, besides that well-informed mothers can apply good care pattern for their children after birth with the fulfilment of balanced nutritional intake for their children.

5. CONCLUSION

Based on the results of the discussion can be summarized as follows:

1. There was no significant association between maternal age and stunting of children under five in Mimika Regency Health Office (p-value 1,000; RP = 0,0956; CI95% (0,400- 2,283))
2. There was no significant association of meaningful maternal education with stunting in infants at the Mimika Regency Health Office (p-value 0.662; RP = 1.216; CI95% (0.684 - 2.162)).
3. There was a non-significant association of mother's work with stunting in infants at the Mimika Regency Health Office (p-value = 0.680; RP = 1.276; CI95% (0.656- 2.480)).
4. There is an unrelated association of maternal families with stunting in infants at the Mimika Regency Health Office (p-value = 0.184; RP = 1.564; CI95% (0.889- 2.751)).
5. There is a significant correlation between mother's knowledge with stunting in infants at Mimika Regency Health Office (p-value = 0,000; RP = 5,143; CI95% (3,126 - 8,460)).
6. There is a significant correlation between mother care pattern with stunting in underfive at Mimika Regency Health Office (p-value = 0,000; RP = 4,263; CI95% (2,585 - 7,033)).
7. There was no significant association of infectious diseases with stunting in infants at the Mimika Regency Health Office (p-value = 0.232; RP = 1.509; CI95% (0.847 - 2.688)).
8. There was a significant correlation between birth weight and stunting in

infants at the Mimika Regency Health Office (p-value = 0,000; RP = 3,841; CI95% (2,548 - 5,790).

9. Knowledge, parenting and birth weight is the main factor with the incidence of stunting in toddlers and knowledge is the dominant factor with the incidence of stunting in infants.

REFERENCES

- Adriana, M., & Bambang, W. (2014). Gizi dan Kesehatan Anak. Kencana, Jakarta.
- Ambarwati F.R dan Nasution N (2012). *Buku Pintar Asuhan Keperawatan Bayi & Balita*. Cakrawala Ilmu, Yogyakarta.
- Anshori H. Hubungan Risiko Kejadian *Stunting* pada Anak Usia 12-24 Bulan. Semarang: Universitas Diponegoro. 2013. <http://eprints.undip.ac.id>. Diakses pada 6 Maret 2018.
- Anisa P (2012). Faktor - Faktor Yang Berhubungan Dengan Kejadian *Stunting* Pada Balita Usia 25 – 60 Bulan Di Kelurahan Kalibaru Depok Tahun 2012. http://www.fk_ui.co.id. Diakses pada 6 Maret 2018.
- Aridiyah FO (2015) Faktor-faktor yang Mempengaruhi Kejadian *Stunting* pada Anak Balita di Wilayah Pedesaan dan Perkotaan (The Factors Affecting *Stunting* on Toddlers in Rural and Urban Areas). e-Jurnal Pustaka Kesehatan, vol. 3 (no. 1) Januari 2015
- Astari, L. D., A. Nasoetion, dan C. M. Dwiriani (2005). “Hubungan Karakteristik Keluarga, Pola Pengasuhan, dan Kejadian *Stunting* Anak Usia 6-12 Bulan”. *Media Gizi dan Keluarga* 29 (2): 40-46. Diakses pada 25 Januari 2012 dari www.repository.ipb.ac.id
- Badriah D. L (2013). *Gizi Dalam Kesehatan Reproduksi*. Refika Aditama, Jakarta.
- Berg SH. (2010). *Risk Factors for Stunting Among Under Five in Libya*. *Public Health Nutrition*, 12(8): 1141-1149. DOI: 10.1017/S1368980008003716 Diakses dari: <http://www.ncbi.nlm.nih.gov/pubmed/18789172>.
- _____Dinkes Provinsi Papua, 2017. *Profil Kesehatan Papua*.
- _____Dinkes Kabupaten Mimika, 2017. *Profil Kesehatan Kabupaten Mimika*.
- Handayani., Suryani (2017). Kamus Bahasa Indonesia. Giri Ilmu Surabaya.
- Illahi RK (2017). Hubungan Pendapatan Keluarga, Berat Lahir, Dan Panjang Lahir Dengan Kejadian *Stunting* Balita 24-59 Bulan di Bangkalan. *Jurnal Manajemen Kesehatan Yayasan RS Dr. Soetomo*, Vol. 3 No. 1, April 2017 : 1 – 14.
- Jahiroh, 2011. Hubungan *Stunting* Dengan Kejadian Tuberkulosis Pada Balita. 2 Fakultas Kesehatan Masyarakat Universitas Indonesia, Jakarta.
- _____Kemenkes RI (2015). *Rencana Strategi Dalam Peningkatan Gizi*. <http://www.kemkes.go.id>. diakses 6 Februari 2018.
- _____Kemenkes RI (2016). *Status Gizi Balita Pendek*. <http://www.kemkes.go.id>. diakses 6 Februari 2018.
- Kusumawardhani I (2017). *ASI Eksklusif, Panjang Badan Lahir, Berat Badan Lahir Rendah Sebagai Faktor Risiko Terjadinya Stunting Pada Anak Usia 6-24 Bulan Di Puskesmas Lendah II Kulon Progo*. Poltekkes Kemenkes Yogyakarta.
- Limanto TL (2010). Hubungan status gizi dan malaria falciparum berat di Kab Sikka, Flores, NTT. *Sari Pediatri*, Vol. 11, No. 5, Februari 2010.
- Margiati (2013). *Psikologi perkembangan Dalam kebidanan*. Bina Pustaka Publisher, Jakarta.
- Maryam S, (2014). *Promosi Kesehatan*. Jakarta: EGC.
- Masithah T., Soekirman, dan D. Martianto (2005). “Hubungan Pola Asuh Makan Dan Kesehatan Dengan Status Gizi Anak Batita Di Desa Mulya Harja”. *Media Gizi Keluarga*, 29 (2): 29-39. Diakses pada 19 Januari dari www.repository.ipb.ac.id
- Marliyati (2015). Pertumbuhan Bayi dan Pemberian ASI Eksklusif oleh Ibu Penerima Konseling Menyusui dan Makanan Tambahan Torbangun. *Jurnal Gizi Pangan*. 10 (2): 77-84
- Maryunani (2013). *Ilmu Kesehatan Anak Dalam Kebidanan*. TIM, Jakarta.
- Mubarak W (2011). *Promosi Kesehatan Untuk Kebidanan*. Salemba Medika, Jakarta.
- Nabuasa CD (2013). *Hubungan Riwayat Pola Asuh, Pola Makan, Asupan Zat Gizi Terhadap Kejadian Stunting Pada Anak*

- Usia 24 - 59 Bulan Di Kecamatan Biboki Utara Kabupaten Timor Tengah Utara Propinsi Nusa Tenggara Timur. <http://www.ugm.co.id>. Diakses 6 Maret 2018.
- Notaotmodjo S (2011). *Ilmu Kesehatan Masyarakat, Perilaku, Ilmu dan Seni*. Cetakan ketiga. Rineka Cipta, Jakarta.
 - Notoatmodjo S (2012). *Metode Penelitian Kesehatan*. Rineka Cipta, Jakarta.
 - Nurjannah (2013). *Asuhan Kebidanan*. Nuha Medika, Yogyakarta.
 - Parii (2014). *Penilaian Status Gizi*. EGC, Jakarta.
 - Prawirohardjo, (2012). *Ilmu Kebidanan*. Jakarta: YBP-SP.
 - Proverawati A., Ismawati C, (2012). *BBLR (Berat Badan Lahir Rendah)*. NuhaMedika, Yogyakarta.
 - Rahim, F. (2014). Faktor Risiko Underweight balita umur 7-59 bulan. *Jurnal Kesehatan Masyarakat*. 9 (2) : 15-121.
 - Rochmah AM (2017) *Faktor-Faktor Yang Berhubungan Dengan Stunting Pada Balita Usia 24-59 Bulan di Wilayah Kerja Puskesmas Wonosari I*. Universitas 'Aisyiyah Yogyakarta.
 - Sari R (2017). Faktor Determinan Yang Berhubungan Dengan Kejadian *Stunting* Pada Balita Di Kabupaten Pesawaran Lampung. *Wacana Kesehatan* Vol. 2, No.2, Desember 2017
 - Septiari Betyu Bea, 2012. *Mencetak Balita Cerdasa dan Polas Asuh Orang Tua*. Nuha Medika, Yogyakarta.
 - Sulistyoningsih (2011). *Gizi Untuk Kesehatan Ibu dan Anak*. Graha Ilmu, Yogyakarta.
 - Swarjana (2013). *Metodologi Penelitian Kesehatan*. Andi, Yogyakarta.
 - _____SK Gubernur Tentang Upah Minimum Regional No. 162 Tahun 2018. www.papua.go.id. (online, <http://www.papua.go.id>. diakses 20 Februari 2018).
 - Senbanjo, I. O., et al. 2011. "Prevalence of and Risk factors for *Stunting* among School Children and Adolescents in Abeokuta, Southwest Nigeria". *J Health Popul Nutr*, 29(4): 364-370. www.bioline.org. Diakses pada 6 Maret 2018.
 - Supariasa I.D.N (2012). *Penilaian Status Gizi*. EGC, Jakarta.
 - Supriyanti, NT, (2014). *Hubungan Antara Riwayat Pemberian ASI, Pola Konsumsi, dan Kejadian Infeksi dengan Status Gizi Balita Usia 12-59 Bulan di Desa Baban, Kecamatan Gapura, Sumenep*. Skripsi. Universitas Airlangga.
 - Taguri, A. E., et al. 2008. "Risk Factor For *Stunting* Among Under Five in Libya". *Public Health Nutrition*, 12 (8), 1141-1149. Diakses pada 27 Januari 2012 dari www.ncbi.nlm.nih.gov
 - _____UNICEF. 2012. *Indonesia Laporan Tahun 2012*. UNICEF: Jakarta

How to cite this article: Silas L, Rantetampang AL, Tingginehe R et al. The factors affecting stunting child under five years in sub province mimika. *International Journal of Science & Healthcare Research*. 2018; 3(2): 99-108.
